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ABSTRACT

Changing demands on academic libraries make it important to assess continuously the status of academic library resources and library operations. The Academic Library Survey (ALS), conducted periodically by the National Center for Education Statistics (NCES) since 1966, was designed to provide concise information on library resources, services, and expenditures for the entire population of academic libraries in the United States. This report summarizes the status of U.S. academic libraries in 1992 and presents data on changes in library staffing and resources between 1990 and 1992. Tables examine seven focal indicators of library status: (1) total full-time equivalent (FTE) library staff; (2) total FTE library staff per 1,000 FTE students and per 100 full-time instructional faculty members; (3) total volumes held; (4) total volumes held per FTE student; (5) total library operating expenditures; (6) total library operating expenditures as a percentage of total educational and general expenditures; and (7) total library operating expenditures per FTE student. Appendices provide: data on FTE student enrollment, faculty size, and total educational and general expenditures information; and technical materials describing ALS methodology and statistical procedures. (Contains 15 references.) (SWC)

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Descriptive Report

June 199[illegible]

The Status of Academic Libraries in the United States

Results From the 1990 and 1992 Academic Library Surveys

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NATIONAL CENTER FOR EDUCATION STATISTICS

Descriptive Report June 1997

The Status of Academic Libraries in the United States

Results From the 1990 and 1992 Academic Library Surveys

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Introduction

Academic libraries in the United States have served as key resources to post-secondary institutions since the inception of universities. Libraries on university and college campuses inspire, educate, and guide young and old minds alike in their quest for knowledge. In addition to serving as one of the principal reserves for advanced academic research, they provide students and faculty with supplementary information for classes, aid in gathering necessary materials for research, and even support the educational needs and services of the surrounding community. Libraries provide opportunities for learning as well as a humbling reminder of the vast amount of information that is available. Two of the national education goals for the year 2000 emphasize the important roles played by the resources and staff efforts of academic libraries. The nation's fourth education goal, which is concerned with the ongoing need for access to learning resources for teachers and faculty members, and the nation's sixth education goal, which speaks of lifelong learning, both stress the importance of maintaining and improving the nation's academic libraries (National Education Goals Panel 1994).

Changing demands on academic libraries make it important to continuously assess the status of academic library resources and library operations. For this reason, organizations such as the Association of Research Libraries (ARL), the Association of College and Research Libraries (ACRL), and the Oberlin Group survey selected groups of libraries on a periodic basis.[1] The ARL, in particular, has annually surveyed over 100 research libraries since 1961–62. In spite of the acknowledged importance of academic libraries, various surveys and reports have found these libraries severely challenged to meet all the needs of faculty, students, and other users. First, there are now more consumers of library services than ever before. For example, enrollment increased steadily during the 20 years previous to 1992; ARL schools reported an increase of 9.5 percent in student enrollment from 1986 to 1992

(Association of Research Libraries 1994). Second, as the numbers of enrolled students have increased, the numbers of library staff have remained constant, resulting in fewer staff members per student (Association of Research Libraries 1994). Third, there has been a surge in the amount of information available in many formats, including journals and books that are published outside the United States and that are likely to carry higher prices within the United States (Leonard 1994). Fourth, librarians and other library staff have had to master increasing numbers and varieties of new technologies and different ways of organizing and maintaining collections. Finally, libraries have had to tackle these demands while faced with increasing financial pressures (Association of College and Research Libraries 1995).

The Academic Library Survey

The Academic Library Survey (ALS), conducted periodically by the National Center for Education Statistics (NCES) and first administered in 1966, was designed to provide concise information on library resources, services, and expenditures for the entire population of academic libraries in the United States. As of 1990, the ALS is part of the NCES Integrated Postsecondary Education Data System (IPEDS), which is the U.S. Department of Education's vehicle for collecting data from all postsecondary institutions in the United States. The ALS data presented in this report will be useful to local, state, and national leaders concerned with higher education, as well as to academic library staff.

Institutions with accreditation at the higher education level, as recognized by the Secretary of Education, and with their own library are asked to participate in the ALS. The ALS questionnaire has been designed to provide an overall description of library status and operations while attempting to minimize respondent burden. In 1992, the ALS form included 46 items that probed for information in the following five areas:

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[1] The Association of Research Libraries (ARL) is a not-for-profit membership organization comprising 119 libraries of North American research institutions, over 100 of them United States universitites. Its mission is to shape and influence forces affecting the future of research libraries in the process of scholarly communication. The Association of College and Research Libraries (ACRL) is a division of the American Library Association. Its mission is to provide leadership for development, promotion, and improvement of academic and research library resources and services to facilitate learning, research, and the scholarly communication process. The Oberlin Group of Liberal Colleges Library Directors is an informal association of library directors from 76 American colleges known for the quality of their academic programs. The Oberlin Group gathers statistics annually from its members on their collections, expenditures, and staffing. These data are not published outside the group, but their existence is known in the library community because of the prestige of the colleges.

- Number of Public Service Outlets (1 item)
- Library Staff (5 items)
- Library Operating Expenditures (13 items)
- Library Collections (24 items)
- Library Services both for the year (overall) and for a typical week (3 items)

In the respondents' survey booklets, ALS items were followed by a list of instructions that explained precisely how responses were to be developed for each of the items.

Overview of This Report

The ALS dataset is still evolving, and this report is the first of its kind to compare ALS data over time and to make use of the Carnegie institutional classification system to group academic libraries into useful categories. Results for U.S. academic libraries in 1992 are displayed in tabular format in Williams (1994). This report summarizes the status of U.S. academic libraries in 1992 and presents data on changes in library staffing and resources between 1990 and 1992. The tables included in this report examine the following seven focal indicators of library status:

- Total full-time equivalent (FTE) library staff
- Total FTE library staff per 1,000 FTE students and per 100 full-time instructional faculty members (i.e., total instructional faculty on 9–10 and 11–12 month contracts)
- Total volumes held
- Total volumes held per FTE student
- Total library operating expenditures
- Total library operating expenditures as a percentage of total educational and general expenditures
- Total library operating expenditures per FTE student

These seven indicators were chosen for several reasons: (1) they provide information in key areas related to the status of academic libraries; (2) data were available for these indicators for both 1990 and 1992; and (3) response rates for these indicators in 1992 exceeded the NCES standard of 70 percent. Full-time equivalent (FTE) library staff persons, rather than librarians specifically, were chosen to describe personnel resources since FTE library staff is a more inclusive indicator (and, in fact, includes librarians). In addition, it should be noted that as of 1992, the ALS did not collect data on some of the electronic technologies that now play major roles in the delivery of academic library services.

Two types of tables are featured in this report: (1) tables that summarize (a) the values for total FTE library staff, total volumes held, and total library operating expenditures, respectively, in 1992 and (b) the percentage change in these values from 1990; and (2) tables that describe the quartile values of these focal indicators for different types of institutions. To compute change values, libraries with imputed

fields, missing data, or zero values for any of the focal indicators for 1990 or 1992 were excluded from the analyses—roughly one-fourth of the survey universe. (See appendix B for discussions of the rationales for setting imputed data values to missing and excluding libraries with any missing data on the focal indicators from analyses of changes over time.) These change measures are thus reflective of those institutions that provided complete information in 1990 and 1992 for all of the focal indicators presented in this report. In contrast, particular indicator values for 1992 are based on all institutions that provided data for these indicators in that year; imputed fields and zero values for particular indicators were set to missing in computing these values.

Public and private institutions are considered separately in this report, and to enhance interpretation, data in the tables are organized within sector according to the 1994 Carnegie Classification, which labels institutions according to their highest degree awarded and their instructional and research emphases. Similar Carnegie Classification categories have been merged to facilitate interpretation. The following six categories are used in the various tables in this report:

- *Research Universities:* These institutions offer baccalaureate programs, are committed to graduate education through the doctorate degree, and give high priority to research. They award 50 or more doctoral degrees each year, and receive annually at least $15.5 million in federal support. (This merged category includes Research I and Research II institutions as defined in the Carnegie Classification.)

- *Doctoral Universities:* These institutions offer baccalaureate programs and are committed to graduate education through the doctoral degree. They award a total of at least 10 doctoral degrees annually across 3 or more disciplines. (This merged category includes Doctoral I and Doctoral II institutions as defined in the Carnegie Classification.)

- *Master's Colleges and Universities:* These institutions offer baccalaureate programs and are committed to graduate education through the master's degree. They award at least 20 master's degrees in 1 or more disciplines. (This merged category includes Master's I and Master's II institutions as defined in the Carnegie Classification.)

- *Baccalaureate Colleges:* These institutions are primarily undergraduate colleges with major emphasis on baccalaureate degrees in liberal arts fields. (This merged category includes Baccalaureate I and Baccalaureate II institutions as defined in the Carnegie Classification.)

- *Associate of Arts Colleges:* These institutions offer associate of arts certificate or degree programs and, with few exceptions, offer no baccalaureate degrees. (No merging was done for this Carnegie category.)

- *Specialized Institutions:* These institutions offer degrees ranging from the bachelor's to the doctorate, and at least 50 percent of the degrees awarded are in a single discipline. Specialized institutions include theological seminaries and bible colleges; medical schools and medical centers; other separate health profession schools; engineering and technology schools; business and management schools; art, music, and design schools; law schools; teachers colleges; and other specialized institutions (maritime academies, military institutes, and so forth). (No merging was done for this Carnegie category.)

Appendix A provides estimates of (1) 1992 FTE student enrollment and number of full-time instructional faculty for public and private institutions with academic libraries by Carnegie Classification, as well as changes in these estimates from 1990 to 1992, and (2) total 1992 educational and general (E and G) expenditures and changes in these expenditures from 1990 to 1992. Appendix B provides technical material describing the methodology of the ALS, as well as the statistical procedures followed in this report.

Resources

Library Staff

Academic libraries must meet the needs of increasing numbers of students as the enrollments in colleges and universities continue to rise. Between 1990 and 1992, full-time equivalent (FTE) student enrollments in both public and private institutions increased (appendix A, table A.1). Coupled with this rise in the numbers of students, public and private institutions, respectively, also reported constant and slight increases in the numbers of full-time instructional faculty on 9–10 and 11–12 month contracts between 1990 and 1992. Overall, public institutions enrolled over three times as many students as private institutions in 1992, and public institutions employed almost three times as many full-time instructional faculty.

Public academic libraries employed about 61 percent of the nation's total FTE academic library staff in 1992 (table 1). Within public sector institutions, research universities employed the greatest numbers of FTE library staff members. Public master's and associate of arts libraries followed research libraries in numbers of total FTE library staff, and public baccalaureate and specialized libraries employed the fewest library staff members of all public sector institutions (about 5 percent). Within private sector institutions, research and baccalaureate libraries employed the largest numbers of total FTE library staff in 1992. Despite increases in the total numbers of enrolled FTE students on public and private college and university campuses nationwide from 1990 to 1992 (appendix A, table A.1), the numbers of FTE library staff persons decreased in public sector institutions (by 3.2 percent) and remained about the same in private institutions during this same period (table 1).

Table 1 — Total FTE library staff for public and private institutions by Carnegie Classification: 1992 and percent change from 1990

	1992 total FTE library staff	% change in FTE library staff since 1990
Total	96,241	−2.4
Public	58,518	−3.2
Research	21,947	−1.9
Doctoral	6,565	2.9
Master's	13,397	−5.8
Baccalaureate	1,365	−4.7
Associate of Arts	11,834	−4.4
Specialized	1,595	−11.2
Private	37,724	−1.2
Research	10,684	−1.1
Doctoral	3,612	2.8
Master's	6,223	1.7
Baccalaureate	8,820	−4.8
Associate of Arts	834	−1.4
Specialized	3,679	−1.1

NOTE: The 1992 total for all institutions, as well as the public and private sector totals, were taken from *Academic Libraries: 1992* (Williams 1994, Washington, DC: U.S. Department of Education, National Center for Education Statistics, NCES 95–031). That report included institutions without a designated 1994 Carnegie Classification, but such institutions are not included in the tabulations presented in this report. In addition, imputed values were set to missing in deriving estimates for this report. For these reasons, the estimates for the various Carnegie Classifications do not sum to the public and private totals shown in the tables. Please see appendix B for technical details.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), 1990 and 1992 Academic Library Surveys.

Library Staff/Student Ratios

The numbers of FTE library staff per 1,000 FTE students and per 100 full-time instructional faculty are reported in table 2. In 1992, library staff/student ratios were more than twice as high in private institutions as in public institutions. In private institutions, there were 13.7 FTE library staff members for every 1,000 FTE students in 1992, compared to 5.3 staff per 1,000 students in their public sector counterparts. Among the Carnegie Classifications, where the private sector consistently evidenced higher library staff/student ratios than the public sector (with the exception of specialized academic libraries), libraries at private research universities had by far the highest library staff/student ratios within the private sector—23.3 FTE library staff members for every 1,000 FTE students. Among public sector institutions, research and specialized academic libraries showed the highest library staff/student ratios. The lowest library staff/student ratios were found in public and private associate of arts colleges—only 4 to 5 FTE library staff members per 1,000 FTE students.

Looking at the quartile distributions of library staff/student ratios, public-private differences are even more pronounced. For example, those private research universities in the upper quartile of library staff/student ratios (i.e., with the most library staff per 1,000 FTE students within a particular Carnegie Classification), had 20.9 more FTE library staff members available per 1,000 students than did public upper-quartile research libraries. In addition, private institutions in the upper quartiles generally had library staff/student ratios that were twice as high overall as those in private lower-quartile institutions; for example, private specialized institutions in the lower quartiles had 11.8 FTE library staff members available per 1,000 FTE students, compared to 36.2 staff per 1,000 students in upper-quartile specialized institutions.

In addition to having ratios only half those of private institutions by 1992, public institution library staff/student ratios at the aggregate level decreased at almost twice the rate of private institution ratios from 1990 to 1992—9.3 percent versus 4.8 percent, respectively (table 2). Private institution decreases in library staff/student ratios were more modest than those in public institutions across each Carnegie Classification, except in the case of research universities. Public institutions classified as master's, baccalaureate, and associate of arts reported decreases of 10 percent or more in the numbers of FTE library staff per 1,000 FTE students. The decreases were less than 5 percent in private research, master's, and specialized institutions, or, in the case of private doctoral universities, remained about the same.

Table 2 — Total FTE library staff per 1,000 FTE students and per 100 full-time instructional faculty on 9–10 and 11–12 month contracts for public and private institutions by Carnegie Classification: 1992 and percent change from 1990

				Research		Doctoral		Master's		Baccalaureate		Associate of Arts		Specialized	
	Total	Public	Private	Public	Private	Public	Private	Public	Private	Public	Private	Public	Private	Public	Private
Total FTE library staff per 1,000 FTE students															
Lower quartile	3.7	2.9	5.6	9.2	17.4	6.8	9.0	6.1	7.9	6.0	10.3	3.2	4.1	9.9	11.8
Median	5.8	4.1	8.3	11.4	25.7	8.8	14.4	7.4	10.4	7.8	14.5	4.5	7.8	16.5	20.7
Upper quartile	9.6	6.0	13.2	14.0	34.9	11.0	16.6	9.3	13.9	10.4	20.2	6.2	15.0	26.9	36.2
National average	9.6	5.3	13.7	11.9	23.3	8.7	13.8	7.6	10.6	7.6	14.4	4.0	5.3	15.0	14.5
% change in staff/1,000 FTE students since 1990	–8.0	–9.3	–4.8	–3.3	–3.5	–2.8	0.9	–11.2	–3.3	–10.0	–7.9	–14.0	–11.9	–18.6	–4.4
Total FTE library staff per 100 full-time instructional faculty members															
Lower quartile	13.4	11.2	17.3	19.0	26.2	15.5	17.3	13.6	16.0	13.5	17.9	9.3	12.0	12.9	20.0
Median	18.8	15.4	24.1	22.3	34.5	19.7	26.6	16.4	20.0	18.1	22.9	13.1	20.0	18.9	35.7
Upper quartile	27.0	20.0	36.4	27.1	45.8	23.5	33.0	20.5	26.1	21.6	31.1	18.0	31.0	25.0	54.2
National average	20.8	18.3	27.3	24.0	35.9	19.8	27.5	17.2	21.3	17.3	24.3	12.9	17.0	19.6	33.7
% change in staff/100 full-time instructional faculty since 1990	–3.5	–3.7	–3.8	–0.5	–7.1	3.8	0.8	–4.1	–2.1	–5.9	–5.8	–8.1	–4.7	–26.6	4.1

NOTE: The 1992 total for all institutions, as well as the public and private sector totals, were taken from *Academic Libraries: 1992* (Williams 1994, Washington, DC: U.S. Department of Education, National Center for Education Statistics, NCES 95–031). That report included institutions without a designated 1994 Carnegie Classification, but such institutions are not included in the tabulations presented in this report. In addition, imputed values were set to missing in deriving estimates for this report. For these reasons, the estimates for the various Carnegie Classifications do not sum to the public and private totals shown in the tables. Please see appendix B for technical details.

NOTE: Quartile distributions represent the variation in indicator values, from those values in the top 25 percent of the distribution to those in the bottom 25 percent.

SOURCES: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), 1990 and 1992 Academic Library Surveys; IPEDS 1989–90 and 1991–92 Fall Enrollment Surveys; IPEDS 1990–91 and 1992–93 Salaries, Tenure, and Benefits of Full-Time Instructional Faculty Surveys.

Library Staff/Instructional Faculty Ratios

Closely resembling the pattern shown for library staff/student ratios, private institutions in each Carnegie category had more FTE library staff members available per 100 full-time instructional faculty in 1992 than did public institutions (table 2). Overall, private institutions had 27.3 FTE library staff for every 100 full-time instructional faculty members, whereas the public sector ratio was 18.3 FTE library staff per 100 full-time instructional faculty members. Similar to library staff/student ratios, the ratio of library staff per 100 full-time instructional faculty was highest in private research and specialized libraries and was lowest in both public and private associate of arts college libraries (12.9 and 17.0 FTE library staff, respectively, per 100 full-time instructional faculty members). Among public institutions, research and doctoral libraries showed the highest library staff/instructional faculty ratio—24.0 and 19.8 FTE library staff, respectively, per 100 full-time instructional faculty.

The quartile distribution of library staff/instructional faculty ratios accentuates the differences between academic libraries in the public and private sectors. For example, in those private specialized institutions in the upper quartile of library staff/instructional faculty ratios, the library staff/instructional faculty ratio was about one to two: 54.2 FTE library staff members for every 100 full-time instructional faculty members in 1992, compared to a ratio of 25 library staff per 100 instructional faculty members in public upper-quartile specialized libraries.

Overall, academic libraries in both the public and private sectors reported similar decreases in the numbers of FTE library staff available per 100 full-time instructional faculty members on 9–10 and 11–12 month contracts between 1990 and 1992—3.7 percent and 3.8 percent, respectively (table 2). Decreases over this period were most pronounced among public specialized institutions, where the library staff/instructional faculty ratio decreased by 26.6 percent. Public doctoral and private specialized institutions increased their library staff/instructional faculty ratios between 1990 and 1992—by 3.8 percent and 4.1 percent, respectively.

Books, Serial Backfiles, and Other Print Materials

Given the numbers of new and increasingly expensive books and volumes being produced each year, academic libraries have been advised to assess their collections on an ongoing basis to ensure that new acquisitions meet user needs (Ferguson 1992). Changing costs have limited the purchasing power of libraries, making each new purchase all the more important. For example, a 1990–91 ARL report found that as a result of increasing serial prices, research libraries could buy only 85 percent of the new books bought in 1986 (Association of Research Libraries 1992); and the Introduction to the 1991–92 edition of *ARL Statistics* notes that in 1992, research libraries paid $300,000 more for 100,000 fewer monographs than in 1991 (Association of Research Libraries 1993).

Table 3 — Total volumes held at the end of fiscal year 1992 for public and private institutions by Carnegie Classification: 1992 and percent change from 1990

	1992 total volumes	% change in volumes since 1990
Total	749,428,719	5.1
Public	428,683,583	3.9
Research	205,714,294	4.8
Doctoral	49,558,580	4.3
Master's	99,948,111	4.8
Baccalaureate	9,985,650	–0.4
Associate of Arts	44,104,903	2.5
Specialized	8,913,228	–11.8
Private	320,745,136	6.7
Research	109,112,007	9.8
Doctoral	29,827,570	6.2
Master's	45,863,372	5.0
Baccalaureate	77,919,741	5.3
Associate of Arts	3,401,132	–8.5
Specialized	27,167,316	4.0

NOTE: The 1992 total for all institutions, as well as the public and private sector totals, were taken from *Academic Libraries: 1992* (Williams 1994, Washington, DC: U.S. Department of Education, National Center for Education Statistics, NCES 95–031). That report included institutions without a designated 1994 Carnegie Classification, but such institutions are not included in the tabulations presented in this report. In addition, imputed values were set to missing in deriving estimates for this report. For these reasons, the estimates for the various Carnegie Classifications do not sum to the public and private totals shown in the tables. Please see appendix B for technical details.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), 1990 and 1992 Academic Library Surveys.

Total Volumes Held

Overall, libraries in public institutions held about 57 percent, or over 428 million, of the total volumes held by academic libraries in the United States (including books, serial backfiles, and some government documents) at the end of fiscal year 1992 (table 3). The largest shares of volumes held among public institutions were reported by public research libraries (nearly 50 percent) and master's libraries (about 23 percent). Although not true for every Carnegie Classification, in general the availability of volumes roughly parallels the enrollment sizes of the various institutions (appendix A, table A.1). Among private sector institutions, which held about 43 percent of the nation's volumes overall, research and baccalaureate libraries held the most volumes—about 34 percent and about 24 percent, respectively. Private associate of arts colleges held fewer volumes than any other type of private institution in 1992 (but also had the smallest number of enrolled students).

Despite the increasing costs of books and serials in recent years, both public and private institutions reported increases in the total numbers of volumes held between 1990 and 1992 (table 3). Overall, public institutions increased their volume collections by 3.9 percent over this period—private institutions, by 6.7 percent. Among public institutions, academic libraries in many types of institutions reported increases in volumes held, with two exceptions—baccalaureate colleges and specialized institutions. In the private sector, most types of institutions also reported increases in the numbers of volumes held between 1990 and 1992. For example, private baccalaureate libraries increased their collections by over 5 percent during this period.

Total Volumes Held per FTE Student

Despite holding only about three-quarters of the volumes held by public institutions in 1992, private academic libraries held over four times as many books and other volumes per FTE student as public institutions (table 4). Overall, public institutions held 44 volumes for every FTE student, while private institutions held 187 volumes per student. Within each Carnegie Classification, private academic libraries held more volumes per FTE student than did public academic libraries, ranging from 22 to 239 volumes per student. As with library staff/student and library staff/instructional faculty ratios, the public-private sector differences are even more pronounced in the upper quartiles of ratios of volumes per FTE student. For example, upper-quartile private doctoral libraries held 167 volumes per FTE student in 1992, compared to 87 volumes per FTE student in public upper-quartile doctoral libraries. Similarly, private specialized libraries in the upper quartile held 389 volumes per FTE student, compared to 156 volumes per FTE student in public specialized upper-quartile institutions.

Table 4 — Total volumes held per FTE student at the end of fiscal year 1992 for public and private institutions by Carnegie Classification: 1992 and percent change from 1990

				Research		Doctoral		Master's		Baccalaureate		Associate of Arts		Specialized	
	Total	Public	Private	Public	Private	Public	Private	Public	Private	Public	Private	Public	Private	Public	Private
Total volumes held per FTE student															
Lower quartile	22	16	52	81	137	50	72	46	59	45	88	12	8	58	42
Median	58	30	102	103	223	68	93	58	82	59	123	18	28	92	133
Upper quartile	115	59	178	126	360	87	167	73	109	82	181	28	71	156	389
National average	117	44	187	112	239	66	114	56	78	56	128	15	22	84	107
% change in volumes/ FTE student since 1990	–0.9	–2.6	2.8	3.2	7.2	–1.5	4.2	–1.2	–0.2	–5.9	1.8	–7.8	–18.3	–19.2	0.4

NOTE: The 1992 total for all institutions, as well as the public and private sector totals, were taken from *Academic Libraries: 1992* (Williams 1994, Washington, DC: U.S. Department of Education, National Center for Education Statistics, NCES 95–031). That report included institutions without a designated 1994 Carnegie Classification, but such institutions are not included in the tabulations presented in this report. In addition, imputed values were set to missing in deriving estimates for this report. For these reasons, the estimates for the various Carnegie Classifications do not sum to the public and private totals shown in the tables. Please see appendix B for technical details.

NOTE: Quartile distributions represent the variation in indicator values, from those values in the top 25 percent of the distribution to those in the bottom 25 percent.

SOURCES: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), 1990 and 1992 Academic Library Surveys; IPEDS 1989–90 and 1991–92 Fall Enrollment Surveys.

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From 1990 to 1992, private academic libraries reported an increase of 2.8 percent in the numbers of volumes held per FTE student (table 4). Public academic libraries, however, reported a decrease of 2.6 percent in the volumes-per-student ratio over this period. The 3.9 percent increase in the numbers of total volumes held in public academic libraries (table 3) was offset by the corresponding 6.8 percent increase in FTE student enrollment in this sector (appendix A, table A.1), resulting in a decrease in the volume-per-FTE-student ratio (table 4). In the private sector, by contrast, increases in volumes held (6.7 percent) were large enough to more than offset increases in student enrollment (3.8 percent) and result in an increase in the ratio of volumes per FTE student. The two groups that showed the largest decreases in the ratio of volumes per FTE student were public specialized libraries and private associate of arts libraries, which reported decreases of 19.2 percent and 18.3 percent, respectively. In contrast, both public and private research universities reported increases in total volumes held per FTE student—3.2 percent and 7.2 percent, respectively.

Expenditures

The acquisition of necessary library materials has continued to pose a challenge as books and serials grow more and more expensive. A number of reasons may contribute to these increases in material costs; for example, many materials are published outside of the United States, resulting in higher prices after both inflation and the deflated value of the U.S. dollar are taken into account. A 1992 report prepared for The Andrew W. Mellon Foundation found that six European countries combined produced more than twice the titles of the United States (Association of American Universities Task Force 1994). Some sources also suggest that higher prices and growth in commercial publications have contributed to these higher costs (Cummings et al. 1992). Libraries, when faced with the rising cost of materials and more or less fixed budgets, must make difficult decisions in determining what to buy.

Total Library Expenditures

Total library operating expenditures include everything from salaries and wages, to resource materials, to furniture and equipment acquisition and upkeep. In 1992, total library operating expenditures in public institutions were about one-third higher than those in private institutions and accounted for about 61 percent of the nation's total academic library operating expenditures (table 5). Research universities in both sectors spent more on library operating expenditures than did other types of institutions, accounting for about 35–40 percent of total operating costs per sector. In the public sector, libraries in baccalaureate colleges showed the lowest total operating expenditures, and private associate of arts colleges had the lowest library operating expenditures among all public and private institutions.

From 1990 to 1992, total operating expenditures were reported to have decreased overall in public academic libraries, by 3.6 percent, yet were reported to have increased in private academic libraries, by 5.9 percent (table 5). A notable decrease

Table 5 — Total library operating expenditures for public and private institutions by Carnegie Classification: 1992 and percent change from 1990

	1992 total operating expenditures	% change in expenditures since 1990
Total	$3,648,653,735	–0.2
Public	$2,219,166,046	–3.6
Research	$910,351,551	–3.6
Doctoral	$262,070,683	0.0
Master's	$465,094,993	–6.2
Baccalaureate	$45,318,918	0.4
Associate of Arts	$358,975,849	–2.1
Specialized	$72,696,517	–10.3
Private	$1,429,487,689	5.9
Research	$507,080,723	5.5
Doctoral	$156,693,657	6.5
Master's	$199,374,370	11.7
Baccalaureate	$261,456,807	4.4
Associate of Arts	$17,424,656	6.5
Specialized	$133,645,409	1.2

NOTE: The 1992 total for all institutions, as well as the public and private sector totals, were taken from *Academic Libraries: 1992* (Williams 1994, Washington, DC: U.S. Department of Education, National Center for Education Statistics, NCES 95–031). That report included institutions without a designated 1994 Carnegie Classification, but such institutions are not included in the tabulations presented in this report. In addition, imputed values were set to missing in deriving estimates for this report. For these reasons, the estimates for the various Carnegie Classifications do not sum to the public and private totals shown in the tables. Please see appendix B for technical details.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), 1990 and 1992 Academic Library Surveys.

among public institutions occurred in libraries in master's colleges and universities (6.2 percent) and stood in contrast to the 11.7 percent *increase* in private master's library spending. Consistent private sector increases in total operating expenditures between 1990 and 1992 ranged from 4.4 percent in private baccalaureate libraries to 11.7 percent in master's libraries.

Library Share of Institutional Budgets

As part of its ongoing development of standards for academic libraries over the years, the Association of College and Research Libraries (ACRL) established a standard that academic libraries should receive about 6 percent of their university's total budget (1995). In 1993, however, Goudy found that ACRL's 6 percent standard had never been realized. In addition, one study in particular reported that the average Association of Research Libraries (ARL) research library received a steadily diminishing share of the total university budget from 1982 to 1992 (Cummings et al. 1992).

Reported total library operating expenditures as a percentage of total 1992 university educational and general (E and G) expenditures are shown in table 6. Consistent with other studies, these data show that the ACRL standard of 6 percent was not met in 1992. Overall, public academic libraries received only 2.8 percent of the total institutional E and G expenditures in this sector in 1992. Private academic libraries fared better, receiving 4.7 percent of the total E and G expenditures for this sector in 1992. Public and private doctoral libraries received the largest shares of institutional E and G expenditures—3.5 percent each.

From 1990 to 1992, total E and G expenditures increased in both public and private institutions—by 3.5 percent and 8.1 percent, respectively (appendix A, table A.2). Despite these increases, the percentage of total E and G expenditures allocated to libraries decreased substantially in every type of public and private institution from 1990 to 1992 (table 6). Overall, the shares of total E and G expenditures received by public academic libraries decreased by 14.9 percent from 1990 to 1992; for private academic libraries, this decrease was 11.0 percent. Private associate of arts and public specialized libraries evidenced the largest decreases in the shares of E and G expenditures allocated to library costs (19.5 percent and 21.4 percent, respectively). Libraries in private master's colleges and universities reported the smallest decrease in the percentage of the E and G expenditures received for library operating costs.

Table 6 — Percentage of total educational and general (E and G) expenditures received for total library operating expenditures for public and private institutions by Carnegie Classification: 1992 and percent change from 1990

				Research		Doctoral		Master's		Baccalaureate		Associate of Arts		Specialized	
	Total	Public	Private	Public	Private	Public	Private	Public	Private	Public	Private	Public	Private	Public	Private
Operating expenditures as percentage of total E and G expenditures															
Lower quartile	2.0	1.9	2.1	2.4	2.0	2.8	2.1	2.8	2.3	2.8	2.3	1.7	0.9	1.4	2.2
Median	2.7	2.6	2.9	2.7	2.9	3.3	3.8	3.3	2.7	3.4	2.9	2.3	1.9	2.1	3.8
Upper quartile	3.7	3.5	4.0	3.3	3.7	3.8	4.5	3.9	3.3	4.1	3.5	3.1	2.9	3.2	6.6
National average	3.8	2.8	4.7	2.6	2.8	3.5	3.5	3.3	2.8	3.3	3.0	2.2	1.4	1.3	2.7
% change in operating exp./total E and G since 1990	−13.4	−14.9	−11.0	−14.5	−11.2	−11.2	−10.9	−14.7	−6.0	−12.1	−11.7	−16.4	−19.5	−21.4	−14.6

NOTE: The 1992 total for all institutions, as well as the public and private sector totals, were taken from *Academic Libraries: 1992* (Williams 1994, Washington, DC: U.S. Department of Education, National Center for Education Statistics, NCES 95–031). That report included institutions without a designated 1994 Carnegie Classification, but such institutions are not included in the tabulations presented in this report. In addition, imputed values were set to missing in deriving estimates for this report. For these reasons, the estimates for the various Carnegie Classifications do not sum to the public and private totals shown in the tables. Please see appendix B for technical details.

NOTE: Quartile distributions represent the variation in indicator values, from those values in the top 25 percent of the distribution to those in the bottom 25 percent.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), 1990 and 1992 Academic Library Surveys; IPEDS 1989–90 and 1991–92 Financial Statistics Surveys.

Expenditures per FTE Student

With two exceptions (associate of arts colleges and specialized institutions), private academic libraries reported higher expenditures per FTE student for library operations than did their public sector counterparts (table 7). The 1992 national average of expenditures per FTE student among private academic libraries was nearly three times that of public academic libraries ($700 versus $264). Private research libraries spent more on library operations per FTE student than did any other public or private institution—$1,108 per FTE student in 1992. The public-private differences in operating expenditures per FTE student are magnified when the quartile distributions of these ratios are examined (table 7). For example, upper-quartile research universities in the public sector reported a total operating expenditure of $600 per FTE student in 1992, whereas upper-quartile private research universities spent $1,655 per FTE student. The quartile distributions of these ratios also magnify upper-quartile and lower-quartile differences within sector. For instance, in the public sector, average library operating expenditures were $685 per FTE student in specialized academic libraries, and they were almost twice as high in those specialized libraries in the top 25 percent of the distribution of libraries for this type of spending per FTE student ($1,285 per FTE student).

From 1990 to 1992, public academic libraries reported an overall decrease of 9.7 percent in library operating expenditures per FTE student, whereas private academic libraries reported a 2.0 percent increase (table 7). Among public academic libraries, institutions in each Carnegie Classification reported reductions in library expenditures, ranging from a decrease of 5.0 percent in research libraries to a decrease of 17.8 percent in specialized libraries. Most types of private academic libraries reported increases in expenditures per student between 1990 and 1992; however, two types of libraries, associate of arts and specialized libraries, reported decreases in these expenditures (4.9 percent and 2.2 percent, respectively).

Table 7 — Total library operating expenditures per FTE student for public and private institutions by Carnegie Classification: 1992 and percent change from 1990

				Research		Doctoral		Master's		Baccalaureate		Associate of Arts		Specialized	
	Total	Public	Private	Public	Private	Public	Private	Public	Private	Public	Private	Public	Private	Public	Private
Operating expenditures per FTE student															
Lower quartile	$151	$123	$234	$391	$803	$271	$350	$217	$242	$202	$263	$102	$64	$341	$282
Median	$263	$192	$358	$492	$1,207	$331	$571	$260	$322	$242	$363	$138	$159	$613	$483
Upper quartile	$427	$290	$607	$600	$1,655	$401	$772	$318	$391	$324	$526	$184	$278	$1,285	$1,151
National average	$486	$264	$700	$495	$1,108	$348	$599	$262	$340	$253	$428	$122	$112	$685	$526
% change in operating exp./FTE student since 1990	–5.9	–9.7	2.0	–5.0	3.0	–5.5	4.5	–11.5	6.3	–5.2	1.0	–11.8	–4.9	–17.8	–2.2

NOTE: The 1992 total for all institutions, as well as the public and private sector totals, were taken from *Academic Libraries: 1992* (Williams 1994, Washington, DC: U.S. Department of Education, National Center for Education Statistics, NCES 95–031). That report included institutions without a designated 1994 Carnegie Classification, but such institutions are not included in the tabulations presented in this report. In addition, imputed values were set to missing in deriving estimates for this report. For these reasons, the estimates for the various Carnegie Classifications do not sum to the public and private totals shown in the tables. Please see appendix B for technical details.

NOTE: Quartile distributions represent the variation in indicator values, from those values in the top 25 percent of the distribution to those in the bottom 25 percent.

SOURCES: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), 1990 and 1992 Academic Library Surveys; IPEDS 1989–90 and 1991–92 Fall Enrollment Surveys.

Conclusion

The IPEDS Academic Libraries Survey (ALS), conducted biennially by the National Center for Education Statistics (NCES), provides a periodic summary of the status of academic library operations in the United States. This report, which is based on the ALS, examines the status of academic library operations in 1992 and describes trends in academic library resources and expenditures between 1990 and 1992. These data present a picture of academic libraries operating under conditions of stress—associated with having to meet increasing demands for services with diminishing personnel and monetary resources.

From 1990 to 1992, a mixed picture of the availability of resources, such as staff and books, emerges with respect to public and private academic libraries. For example, public academic libraries experienced decreases in their total FTE library staffs, while staffing patterns in private academic libraries remained fairly constant. However, in both sectors, enrollment increases coupled with constant or decreasing library staff sizes resulted in significant decreases in the ratio of library staff persons per 1,000 FTE students and per 100 full-time instructional faculty. Despite decreases in staffing resources from 1990 to 1992, public and private sector academic libraries reported modest increases in the numbers of volumes held over this period. Public and private academic libraries diverged, however, in terms of ratios of volumes held per FTE student from 1990 to 1992; public academic libraries reported a decrease in their volumes-per-student ratio, while their private sector counterparts reported a slight increase in this ratio. Public and private academic libraries also differed in terms of expenditures. For example, public institutions experienced a decrease in total library operating expenditures between 1990 and 1992, whereas private institutions reported an increase in these expenditures. Similarly, public academic libraries reported an overall decrease in the ratio of library operating expenditures

per FTE student, while private academic libraries reported an increase in this ratio between 1990 and 1992. Academic libraries in both sectors received decreasing shares of their total institutional E and G budgets over this period.

In 1992, public institutions had larger FTE student enrollments, instructional faculty sizes, and library staffs than private institutions. In addition, public academic libraries held more volumes and spent more on total library operating expenditures than did their private sector counterparts. Private institutions, however, had higher ratios of library staff per 1,000 FTE students and per 100 full-time instructional faculty members, held more volumes per FTE student, and had higher total expenditures per FTE student. Private academic libraries also received larger percentages of total institutional E and G expenditures than did public academic libraries, although academic libraries in both sectors failed to meet the ACRL standard of 6 percent. Within Carnegie Classifications generally, public and private research libraries had more library staff members, held more volumes, and spent more on total library operating costs than did other types of libraries within each sector.

The findings presented in this report suggest that both public and private academic libraries experienced decreasing proportions of their total institutional budgets from 1990 to 1992, and in 1992, received less of their total institutional expenditures than has been recommended by the ACRL. In addition, private institutions generally appear to offer more library resources, such as library staff, volumes, and expenditures per student than do public institutions. In interpreting the findings presented in this report, however, it is important to consider that technological advances in library services in recent years may compensate for decreasing library staff sizes or reduced staff/student ratios. Also, differences between public and private institutions, such as size, need to be considered in interpreting the public-private comparisons made in this report. The 1996 ALS, which included survey items asking about electronic technologies, may permit further examination of the impact of technological adavances on the delivery of academic library services.

It will be important to continue tracking the status of our nation's academic libraries to find out whether the changes in these important library indicators from 1990 to 1992 represent a continuing trend. In helping to clarify the status of academic libraries over time, the ALS is an important source of information for policymakers and planners charged with ensuring the continuing health of U.S. higher education.

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Appendix A

FTE Student Enrollment, Faculty Size, and Total Education and General (E and G) Expenditures Information

Table A.1 — Average full-time equivalent (FTE) student enrollments and number of full-time instructional faculty for public and private institutions with academic libraries, by Carnegie Classification: 1992 and percent change from 1990

	1992 FTE enrollments[1]	% change in enrollment since 1990	1992 total instruct'l faculty on 9–10 and 11–12 month contracts[2]	% change in faculty since 1990
Total	9,911,544	6.1	434,616	1.2
Public	7,584,624	6.8	310,407	0.4
Research	1,839,740	1.5	91,544	–1.4
Doctoral	753,734	5.8	33,227	–0.9
Master's	1,773,141	6.1	77,674	–2.1
Baccalaureate	179,425	5.9	7,884	1.3
Associate of Arts	2,932,396	11.2	91,935	3.9
Specialized	106,188	9.2	8,143	16.2
Private	2,326,920	3.8	124,209	3.4
Research	457,588	2.4	29,755	6.5
Doctoral	261,819	1.9	13,149	2.0
Master's	585,889	5.2	29,243	3.8
Baccalaureate	611,241	3.4	36,246	1.5
Associate of Arts	156,295	12.0	4,901	8.2
Specialized	254,088	3.6	10,915	–0.4

[1] Student enrollment information is based on the 1989–90 and 1991–92 Fall Enrollment Surveys, conducted by the National Center for Education Statistics as part of its Integrated Postsecondary Education Data System (IPEDS). The number of full-time equivalent (FTE) students is derived by adding the total number of full-time students reported to be enrolled at an institution to one-third of the total number of reported part-time students.

[2] Estimates of faculty size are derived from responses to the 1990–91 and 1992–93 Salaries, Tenure, and Benefits of Full-Time Instructional Faculty Surveys, which are also part of IPEDS.

Table A.2 — Total educational and general (E and G) expenditures for public and private institutions by Carnegie Classification: 1992 and percent change from 1990

	1992 total E & G expenditures	% change in E & G expenditures since 1990
Total	156,189,161,000	5.1
Public	96,847,180,000	3.5
Research	34,406,630,846	3.0
Doctoral	7,590,427,628	2.9
Master's	14,213,354,878	0.9
Baccalaureate	1,379,374,851	5.0
Associate of Arts	16,507,355,427	7.1
Specialized	5,700,231,887	3.2
Private	57,341,982,000	8.1
Research	17,911,973,419	8.3
Doctoral	4,452,911,120	9.6
Master's	7,220,643,268	7.9
Baccalaureate	8,774,868,396	8.4
Associate of Arts	1,264,189,539	17.4
Specialized	4,881,510,901	3.5

SOURCE: U.S. Department of Education, National Center for Education Statistics, IPEDS 1989–90 and 1991–92 Financial Statistics Surveys.

Appendix B

Technical Notes

Scope

The IPEDS Academic Library Survey (ALS) was mailed to 3,615 higher education institutions in the United States in August 1992 and to 284 other postsecondary institutions that had one or more instructional programs of 4 years or more.

The ALS defines an academic library as an organized collection of printed, microform, and audiovisual materials that (1) is administered as one or more units, (2) is located in one or more designated places, and (3) makes printed, microform, and audiovisual materials, as well as necessary equipment and services of staff, accessible to students and to faculty. This definition includes units meeting the above definition that are part of a learning resource center. In addition, the library must be operated by a postsecondary education institution.

Of the 3,615 higher education institutions, 101 institutions that did not have their own library but shared a library with one or more of 60 other institutions were excluded from the survey; 240 out-of-scope institutions (i.e., institutions that did not have an academic library as defined by the survey) were also excluded. Thus, there were 3,274 academic libraries in the colleges and universities in the 50 states and District of Columbia.

New Data Collection Procedures for 1990 and 1992

In July 1990, an NCES/IPEDS academic library survey improvement project began with the assistance of the National Commission on Libraries and Information Science (NCLIS) and the American Library Association's Office of Research and Statistics (ALA-ORS). The project identified a librarian in each state to work with the Integrated Postsecondary Education Data System (IPEDS) Coordinators in submitting library data to NCES. For the 1990 and 1992 data collections, some of those library representatives took major responsibility for collecting data in their state. Others were available to promote prompt responses from librarians and to assist in problem resolution when anomalies were discovered in completed questionnaires.

This project also assisted NCES in developing a microcomputer software package prepared for use by states in reporting library data to NCES. The software package was named Input and Data Editing for Academic Library Statistics (IDEALS). Academic librarians within each state completed hard copy forms as in the past and returned them to the state's library representative or IPEDS Coordinator. States were given the option of submitting the library forms to NCES but were encouraged to enter those data into IDEALS and submit the data on diskette to NCES. Forty-five states and the District of Columbia chose the diskette option for the 1992 survey.

Editing

IDEALS features some internal consistency edit checks as well as a few range and summation checks. These edit checks provide some warning as the data are being keyed. Library representatives at the state level could run edit/error reports and make corrections before submitting the data on diskette to NCES. Examples of these edit checks are listed below:

(1) Summations—reported totals are compared with the sums of the constituent data items. If they are not equal, an error message is generated.

(2) Relational edit checks—the program compares data entries from one section of the questionnaire with data entries from another section of the questionnaire for consistency. For example, if print materials were added to during the fiscal year, the program would expect some expenditure to be reported for print materials. If one is reported without the other, an error message is generated. Another example is that the number of volumes of print materials added during the fiscal year cannot exceed the total number of volumes held at the end of the fiscal year.

(3) Range checks—for example, an error message is generated if: the average salary of librarians is less than $20,000 or greater than $100,000; any of the collections data, except for volumes held at the end of the year, is greater than 1,000,000; or the reported hours of service are less than 10 hours per week or greater than 168 hours per week.

When probable errors were identified by the IDEALS edit checks, state or Census Bureau personnel would contact the institution to resolve the problem.

Special Procedures Followed for This Report

After the ALS data are received by NCES from every state, the data files are merged and general edits and imputations are performed. Because this report presents data summaries disaggregated by Carnegie Classification, imputed values, which were based only on a single year and on a different clustering of institutions, were set to missing prior to analysis (for both the 1990-to-1992 estimates of change and for the 1992 estimated values). Zero values for the variables used in this report were also set to missing, as these were considered to negatively and inappropriately skew indicator values. Institutions without a designated 1994 Carnegie Classification were not included in the tabulations presented in this report; 60 public and 125 private institutions did not fall into one of the Carnegie Classification categories in 1992 (or 1.8 percent and 3.8 percent, respectively). In general, institutions that were not classified by Carnegie Classification include smaller specialized institutions (such as seminaries and technical institutes); junior, community, and city colleges; and branch campuses of larger institutions.

When more than one institution reported making use of the same academic library, values (e.g., enrollment values) for all these institutions were combined and analyzed together with the reported library data. Thus, the ratio of FTE library staff per 1,000 FTE students for three institutions that reported sharing the same academic library would have been calculated by dividing the total FTE library staff by the total FTE enrollment at the three institutions.

The values presented for 1992 were based on all institutions that responded to the approriate survey items in that year; imputed fields and zero values were set to missing for the reasons described above. For the change statistics, libraries with any imputed fields, missing data, or zero values for 1990 or 1992 for any of the ALS variables used in this report were excluded from the analyses (roughly one-fourth of the sample). That is, only those institutions that provided data for all of the focal ALS indicators for both 1990 and 1992 were included in the change analyses. For analyses using other IPEDS datasets, imputed values, which were based in part on values from prior years, were not set to missing—IPEDS 1989–90 and 1991–92 Fall Enrollment Surveys (tables 2, 4, and 7), IPEDS 1990–91 and 1992–93 Salaries, Tenure, and Benefits of Full-Time Instructional Faculty Surveys (table 2), and IPEDS 1989–90 and 1991–92 Financial Statistics Surveys (table 6).

To prevent inconsistencies across NCES reports, the totals for all institutions, as well as the public and private sector totals, were taken from an E.D. TABS report based on 1992 ALS data: Williams, J. (1994). *Academic Libraries: 1992*. Washington, DC: U.S. Department of Education, National Center for Education Statistics (NCES 95–031). The analyses for the E.D. TABS report included institutions for which any value was available, including imputed values. (As mentioned above, imputed values for the focal library indicators were excluded from all analyses performed for this report.) As a result, the overall totals, as well as the public and private totals that can be derived based on this report, are lower than those provided in the E.D. TABS report.

Overall, 76 percent of the 3,274 academic libraries in the 1992 survey universe were included in the computations for the change scores from 1990 to 1992. In 1992, 90.5 percent of libraries in the survey universe responded (Williams 1994). Table B.1 below shows the number of institutions that were grouped by Carnegie Classification category in 1992, as well as individual *item* response rates for each of the three focal indicators presented in tables 1, 3, and 5 of this report. As mentioned above, 60 public and 125 private institutions did not fall into one of the Carnegie Classification categories in 1992. With the exception of private associate of arts institutions, whose individual item response rates ranged from 64 percent to 67 percent, item response rates among the Carnegie Classifications ranged from 86 percent to 100 percent of the 1992 survey universe.

Table B.1 — Number of institutions with academic libraries that were grouped by Carnegie Classification in 1992, and 1992 Academic Library Survey (ALS) item response rates for the variables presented in tables 1, 3, and 5, by sector and Carnegie Classification

	# of institutions w/ acad. libraries that were grouped by Carnegie Classification in 1992	Response rates for library staff (variable B06) %	Response rates for volumes held (variable D202) %	Response rates for library operating expenditures (variable C19) %
Total				
Public				
Research	85	99%	99%	95%
Doctoral	65	100	100	100
Master's	271	99	99	96
Baccalaureate	77	97	97	95
Associate of Arts	884	97	95	95
Specialized	73	92	89	90
Private				
Research	40	98	98	93
Doctoral	45	96	96	96
Master's	246	98	99	96
Baccalaureate	528	95	95	93
Associate of Arts	287	64	67	66
Specialized	488	86	86	86